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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 10/722,005  | 11/25/2003  | Mitsuhiro Togashi    | LEPA121981           | 6985             |
| 26389   | 7590        | 01/24/2005           | EXAMINER             |                  |
| CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC<br>1420 FIFTH AVENUE<br>SUITE 2800<br>SEATTLE, WA 98101-2347 |             |                      | HARRINGTON, ALICIA M |                  |
|   |             |                      | ART UNIT             | PAPER NUMBER     |
|   |             |                      | 2873                 |                  |

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |  |   |  |
|------------------------------|--|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/722,005   | <b>Applicant(s)</b><br>TOGASHI, MITSUHIRO |  |
|                              | <b>Examiner</b><br>Alicia M Harrington | <b>Art Unit</b><br>2873                   |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1103</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The Examiner has considered the information disclosure statement filed on 11/25/03.

### ***Specification***

2. The abstract of the disclosure is objected to because the abstract contains claim language (for example "means"). Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,2,7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyake et al (US 5,515,354).

Regarding claim 1, Miyake discloses an object lens system arranged to face an optical disc (10- for example see figures 1,2 or 7), collect light and irradiate the light onto the optical disc, comprising:

a direction changing means (12) for changing a moving direction of incident light to an orthogonal direction thereof and emitting it onto the optical disc (see figures 1 or 7), the direction changing means being provided with a hologram (13a-see figure 2) on one side surface thereof; and

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a solid lens (6- single lens (no air gaps) double convex collimator) disposed in front of an incident surface (incident from the laser beam) of the direction changing means.

Regarding claim 2, Miyake discloses an object lens system of claim 1, further comprising an optical pick-up apparatus (5) capable of emitting light (1) onto the object lens system and detecting (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

Regarding claim 7, Miyake discloses an object lens system according to Claim 1, wherein the solid lens a convex lens (6) that is disposed from the incident surface of the direction changing means (12; see figure 1).

Regarding claim 8, Miyake disclose an object lens system according to claim 7, further comprising an optical pick-up apparatus (5) to emit light (1) onto object lens system and detect (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

Regarding claim 9, Miyake discloses an object lens system according to Claim 1, wherein the hologram is formed of light transparent materials (see figure 2, 13A is a transmissive holographic element; col. 4, lines 21-35).

Regarding claim 10, Miyake discloses an object lens system according to claim 9, further comprising an optical pick-up apparatus (5) to emit light (1) onto the object lens system and detect (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

5. Claims 11,13,15 are rejected under 35 U.S.C. 102(b) as being anticipated by Oudenhuisen et al (US 4,789,977).

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Regarding claim 11, Oudenhuisen discloses an object lens system (see figure 3 for example) arranged to face an optical disc (60), collect light and irradiate the light onto the optical disc, comprising:

direction changing means (58-PBS; see col. 2, lines 25-45 and col. 3, lines 1-30) for changing moving direction of incident light to an orthogonal direction thereof and emitting it onto the optical disc;

hologram unit (30;col.), lines 25-45) disposed front of the direction changing means and provided with a hologram (hologram grating); and

a solid lens (59;a single convex planar lens-no air gaps) disposed between the direction changing means and the optical disc.

Regarding claim 13,Oudenhuisen discloses an object lens system according claim 11, wherein the direction changing means (58) is a beam splitter (see col. 3,lines 15-20).

Regarding claim 15, Oudenhuisen discloses an object lens system according to claim 11, wherein the hologram is formed of light transparent materials (see figure 3, transmissive hologram-see col. 3, lines 1-30).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US 5,515,354) in view of Horinouchi et al (US 5,377,177)

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Regarding claim 3, Miyake discloses an object lens system according to Claim 1, using a plate shaped direction changing means. However, Miyake fails to specifically disclose the direction changing means is triangular prism that has an incident surface, a reflecting surface and an emitting surface; and the hologram is formed on the emitting surface of the triangular prism.

In the same field of endeavor, Horinouchi discloses in figures 6 and 7 an embodiment of an objective lens system where a direction changing means (105) is a polygon shape figure such that light from a laser is transmitted through an incident surface (102), to a reflecting surface (104) and through an emitting surface (105), and the hologram (112) is formed on the emitting surface of polygon. As illustrated in figure 7, the optical path of light on the three surfaces is a trace of a triangular prism. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miyake to form a direction changing means in a form of triangular prism with three claimed surfaces, since the prior art optical systems teach the structured light path in an objective lens system of compact form using polygons, a triangle is a polygon and triangle shaped direction changing means are known in optical disc systems. Furthermore, the triangle shaped direction changer is the functional equivalent optical (reflector, transmitter/splitter) of the plate shaped direction changer.

Regarding claim 4, Miyake discloses an object lens system of claim 3, further comprising an optical pick-up apparatus (5) to emit light (1) onto the object lens system and detect (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

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8. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US 5,515,354) in view of Horinouchi et al (US 5,377,177), further in view of Braat (US 4,986,641).

Regarding claim 5, Miyake and Horinouchi disclose an object lens system according to Claim 3, wherein: Horinouchi teaches the prism (105) is provided on the incident surface (102) thereof with a second surface that causes the incident light to diverge (area of output from 109) in a direction orthogonal to the optical disc (103); the prism is provided on the emitting surface (105) thereof with a first surface (area output from 112,117) that converges the diverging incident light; and the prism (105) provided on the first surface thereof with the hologram. Additionally, as discussed above in claim 3, the light path traces that of a triangular prism. Again, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miyake to form a direction changing means in a form of triangular prism with three claimed surfaces that diverge and converge light as claimed, since the prior art optical systems teach the claimed structured light path in an objective lens system using polygons in a compact objective system and it is the functional equivalent of the plate shaped structure.

However, Miyake and Horinouchi fail to specifically disclose using a concave surface area as the incident surface (second concave surface) and a concave surface area as the emitting surface (first concave surface). Although, it is known in the art to use concave surfaces on objective lens to diverge and converge light in an objective system as taught by Braat.

Braat discloses an objective system where a concave incident surface (22) receives laser light to diverge the beam and a concave emitting surface (23) converges the beam to focus on an optical disc (see figure 1 for example; col. 5, lines 45-55). Thus, it would have been obvious to

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one of ordinary skill in the art at the time the invention was made to modify Miyake and Horinouchi, to include concave surfaces on the prism since this structure provides the equivalent function of diverging light on an incident surface and converging the light beam on an emitting surface, and prior art teaches such a system in an objective lens system for compact optical recording systems.

Regarding claim 6, Miyake discloses the object lens system claim further comprising an optical pick-up apparatus (5) to emit light (1) onto the object lens system and detect (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

9. Claims 12,14,16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oudenhuisen (US 4,789,977).

Regarding claim 12, Oudenhuisen discloses an object lens system according claim 11, further comprising an optical pick-up apparatus (see col. 3, lines 15-25) to detect the intensity of reflected light obtained by an optical disc. Oudenhuisen also has a light source. (applicant is inherently claiming how a disc is read). Oudenhuisen fails to specifically disclose the optical apparatus emits light and detects (in the same unit). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical pickup apparatus to emit and detect light in an optical recording medium, since the integration of the a laser diode and photo detector in the optical disc system is notoriously well known, the Examiner takes official notice to that fact. Furthermore, this implementation allows the system to be more compact and lighter weight optical system.



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Regarding claim 14, Oudenhuisen discloses an object lens system according to Claim 13, further comprising an optical pick-up apparatus (see col. 3, lines 15-25) to detect the intensity of reflected light obtained by an optical disc. Oudenhuisen also has a light source. (applicant is inherently claiming how a disc is read). Oudenhuisen fails to specifically disclose the optical apparatus emits light and detects (in the same unit). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical pickup apparatus to emit and detect light in an optical recording medium, since the integration of the a laser diode and photo detector in the optical disc system is notoriously well known, the Examiner takes official notice to that fact. Furthermore, this implementation allows the system to be more compact and lighter weight optical system.

Regarding claim 16, Oudenhuisen discloses an object lens system according claim 15, further comprising an optical pick-up apparatus (see col. 3, lines 15-25) provided with the object lens system of claim 15 detect the intensity of reflected light obtained by an optical disc.

Oudenhuisen also has a light source. (applicant is inherently claiming how a disc is read).

Oudenhuisen fails to specifically disclose the optical apparatus emits light and detects (in the same unit). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical pickup apparatus to emit and detect light in an optical recording medium, since the integration of the a laser diode and photo detector in the optical disc system is notoriously well known, the Examiner takes official notice to that fact. Furthermore, this implementation allows the system to be more compact and lighter weight optical system.

### ***Conclusion***

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M Harrington whose telephone number is 571 272 2330.

The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571 272 2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AMH

Alicia M Harrington  
Examiner  
Art Unit 2873